

CPC**COOPERATIVE PATENT CLASSIFICATION****F25D****REFRIGERATORS****COLD ROOMS****ICE-BOXES****COOLING OR FREEZING APPARATUS NOT COVERED BY ANY OTHER SUBCLASS** (refrigerated show cases [A47F 3/04](#) ; thermally-insulated

vessels for domestic use [A47J 41/00](#) ; refrigerated vehicles, see the appropriate subclasses of classes [B60](#) to [B64](#) ; containers with thermal insulation in general [B65D 81/38](#) ; heat-transfer, heat-exchange or heat-storage materials, e.g. refrigerants, or materials for the production of heat or cold by chemical reactions other than by combustion [C09K 5/00](#) ; thermally-insulated vessels for liquefied or solidified gases [F17C](#) ; air-conditioning or air-humidification [F24F](#) ; refrigeration machines, plants or systems [F25B](#) ; cooling of instruments and comparable apparatus without refrigeration [G12B](#) ; cooling of engines or pumps, see the relevant classes)

NOTE

In this subclass, the following term is used with the meaning indicated:

- "device" means an enclosed space to be cooled; such devices being associated either with refrigerating machinery, e.g. in a refrigerator, or with other cold sources, e.g. in an ice-box.

Attention is drawn to Note (2) following the title of subclass [F24F](#) .

Guide heading:

Devices not associated with refrigerating machinery

F25D 1/00

Devices using naturally cold air or cold water

F25D 1/02

. using naturally cold water, e.g. household tap water

F25D 3/00

Devices using other cold materials
Devices using cold-storage bodies

F25D 3/005

. { combined with heat exchangers }

F25D 3/02

. using ice, e.g. ice-boxes

F25D 3/04

.. Stationary cabinets

F25D 3/045

... { Details }

F25D 3/06

.. Movable containers

F25D 3/08

... portable, i.e. adapted to be carried personally

F25D 3/10

. using liquefied gases, e.g. liquid air { (for cooling semiconductor devices [H01L 23/445](#)) }

F25D 3/102

.. { Stationary cabinets }

F25D 3/105	.. { Movable containers }
F25D 3/107	.. { portable, i.e. adapted to be carried personally }
F25D 3/11	.. with conveyers carrying articles to be cooled through the cooling space
F25D 3/12	. using solidified gases, e.g. carbon-dioxide snow
F25D 3/122	.. { Stationary cabinets }
F25D 3/125	.. { Movable containers }
F25D 3/127	.. { Stationary devices with conveyers carrying articles to be cooled through the cooling space }
F25D 3/14	.. portable, i.e. adapted to be carried personally
F25D 5/00	Devices using endothermic chemical reactions, e.g. using frigorific mixtures
F25D 5/02	. portable, i.e. adapted to be carried personally
F25D 7/00	Devices using evaporation effects without recovery of the vapour (butter or cheese dishes with cooling devices A47G 19/26)
F25D 9/00	Devices not covered by groups F25D 1/00 to F25D 7/00 Combinations of devices covered by two or more of the groups F25D 1/00 to F25D 7/00
F25D 9/005	. { using fluorinated halogenous hydrocarbons }
Guide heading:	Devices associated with refrigerating machinery
F25D 11/00	Self-contained movable devices, e.g. domestic refrigerator
F25D 11/003	. { Transport containers }
F25D 11/006	. { with cold storage accumulators }
F25D 11/02	. with cooling compartments at different temperatures
F25D 11/022	.. { with two or more evaporators }
F25D 11/025	.. { using primary and secondary refrigeration systems }
F25D 11/027	.. { of the sorption cycle type }
F25D 11/04	. specially adapted for storing deep-frozen articles (F25D 11/02 takes precedence)
F25D 13/00	Stationary devices, e.g. cold-rooms
F25D 13/02	. with several cooling compartments, e.g. refrigerated locker systems
F25D 13/04	.. the compartments being at different temperatures
F25D 13/06	. with conveyers carrying articles to be cooled through the cooling space

F25D 13/062	.. { with refrigerated conveyers }
F25D 13/065	.. { Articles being submerged in liquid coolant }
F25D 13/067	.. { with circulation of gaseous cooling fluid }
F25D 15/00	Devices not covered by group F25D 11/00 or F25D 13/00 , e.g. non-self-contained movable devices
F25D 16/00	Devices using a combination of a cooling mode associated with refrigerating machinery with a cooling mode not associated with refrigerating machinery
Guide heading:	Details or features of the devices covered by groups F25D 1/00 to F25D 16/00
F25D 17/00	Arrangements for circulating cooling fluids Arrangements for circulating gas, e.g. air, within refrigerated spaces
F25D 17/005	. { in cold rooms }
F25D 17/02	. for circulating liquids, e.g. brine
F25D 17/04	. for circulating air, e.g. by convection
F25D 17/042	.. { Air treating means within refrigerated spaces (air conditioning in general F24F) }
F25D 17/045	... { Air flow control arrangements }
F25D 17/047	... { Pressure equalising devices }
F25D 17/06	.. by forced circulation
F25D 17/062	... { in household refrigerators }
F25D 17/065 { with compartments at different temperatures }
F25D 17/067	... { Evaporator fan units }
F25D 17/08	... using ducts
F25D 19/00	Arrangement or mounting of refrigeration units with respect to devices { or objects to be refrigerated, e.g. infra-red detectors }
F25D 19/003	. { with respect to movable containers }
F25D 19/006	. { Thermal coupling structure or interface }
F25D 19/02	. plug-in type
F25D 19/04	. with more than one refrigeration unit
F25D 21/00	Defrosting Preventing frosting Removing condensed or defrost water (removing ice or water from heat-exchange apparatus in general F28F 17/00 ; heating arrangements specially adapted for transparent or reflecting areas H05B 3/84)

- F25D 21/002 . { Defroster control }
- F25D 21/004 . . { Control mechanisms ([F25D 21/006](#) takes precedence) }
- F25D 21/006 . . { with electronic control circuits }
- F25D 21/008 . . { by timer }

- F25D 21/02 . Detecting the presence of frost or condensate
- F25D 21/025 . . { using air pressure differential detectors }

- F25D 21/04 . Preventing the formation of frost or condensate

- F25D 21/06 . Removing frost ([defrosting cycles F25B 47/02](#))
- F25D 21/065 . . { by mechanical means }
- F25D 21/08 . . by electric heating
- F25D 21/10 . . by spraying with fluid
- F25D 21/12 . . by hot-fluid circulating system separate from the refrigerant system
- F25D 21/125 . . . { the hot fluid being ambient air }

- F25D 21/14 . Collecting or removing condensed and defrost water
Drip trays

- F25D 23/00** **General constructional features ([F25D 21/00](#) takes precedence)**

- F25D 23/003 . { for cooling refrigerating machinery }

- F25D 23/006 . { for mounting refrigerating machinery components }

- F25D 23/02 . Doors
Covers ([F25D 23/08](#) takes precedence) { locks or fastenings [E05B 65/0042](#) }
- F25D 23/021 . . { Sliding doors }
- F25D 23/023 . . { Air curtain closures }
- F25D 23/025 . . { Secondary closures }
- F25D 23/026 . . { for open-top cabinets }
- F25D 23/028 . . { Details }
- F25D 23/04 . . with special compartments, e.g. butter conditioners

- F25D 23/06 . Walls ([F25D 23/08](#) takes precedence; containers with thermal insulation [B65D 81/38](#))
- F25D 23/061 . . { with conduit means }
- F25D 23/062 . . { defining a cabinet }
- F25D 23/063 . . . { formed by an assembly of panels }
- F25D 23/064 . . . { formed by moulding, e.g. moulding in situ }
- F25D 23/065 . . { Details }
- F25D 23/066 . . . { Liners }
- F25D 23/067 . . . { Supporting elements }
- F25D 23/068 . . . { Arrangements for circulating fluids through the insulating material }
- F25D 23/069 . . { Cooling space dividing partitions }

- F25D 23/08 . Parts formed wholly or mainly of plastics materials
- F25D 23/082 . . { Strips }

NOTE

When a document describes both breaking and sealing strips it is classified in group [F25D 23/082](#) only.

- F25D 23/085 . . . { Breaking strips }
- F25D 23/087 . . . { Sealing strips }
- F25D 23/10 . Arrangements for mounting in particular locations, e.g. for built-in type, for corner type
- F25D 23/12 . Arrangements of compartments additional to cooling compartments
Combinations of refrigerators with other equipment, e.g. stove
- F25D 23/123 . . { Butter compartment }
- F25D 23/126 . . { Water cooler }

F25D 25/00 Charging, supporting, and discharging the articles to be cooled

- F25D 25/005 . { using containers }
- F25D 25/02 . by shelves
- F25D 25/021 . . { combined with trays }
- F25D 25/022 . . { Baskets }
- F25D 25/024 . . { Slidable shelves }
- F25D 25/025 . . . { Drawers }
- F25D 25/027 . . { Rotatable shelves }
- F25D 25/028 . . { Cooled supporting means }
- F25D 25/04 . by conveyers (in general [B65G](#))

F25D 27/00 Lighting arrangements (in general [F21](#))

- F25D 27/005 . { combined with control means }

F25D 29/00 Arrangement or mounting of control or safety devices

- F25D 29/001 . { for cryogenic fluid systems }
- F25D 29/003 . { for movable devices }
- F25D 29/005 . { Mounting of control devices }
- F25D 29/006 . { Safety devices }

F25D 29/008 . { Alarm devices }

F25D 31/00 Other cooling or freezing apparatus

F25D 31/001 . { Plate freezers }

F25D 31/002 . { Liquid coolers, e.g. beverage cooler (receptacle coolers [F25D 31/006](#)) }

F25D 31/003 .. { with immersed cooling element }

F25D 31/005 . { Combined cooling and heating devices }

F25D 31/006 . { specially adapted for cooling receptacles, e.g. tanks }

F25D 31/007 .. { Bottles or cans }

F25D 31/008 .. { Drinking glasses }

Guide heading:

F25D 2201/00 Insulation

F25D 2201/10 . with respect to heat

F25D 2201/12 .. using an insulating packing material

F25D 2201/122 ... of loose fill type

F25D 2201/124 ... of fibrous type

F25D 2201/126 ... of cellular type

F25D 2201/1262 with open cells

F25D 2201/128 ... of foil type

F25D 2201/1282 with reflective foils

F25D 2201/14 .. using subatmospheric pressure

F25D 2201/30 . with respect to sound

Guide heading:

F25D 2230/00

F25D 2240/00

F25D 2250/00

F25D 2260/00

F25D 2270/00

F25D 2300/00 **Special arrangements or features for refrigerators**
cold rooms
ice-boxes
Cooling or freezing apparatus not covered by any other subclass

F25D 2303/00

- F25D 2303/08 . Devices using cold storage material, i.e. ice or other freezable liquid
- F25D 2303/081 . . using ice cubes or crushed ice
- F25D 2303/082 . . disposed in a cold storage element not forming part of a container for products to be cooled , e.g. ice pack or gel accumulator
- F25D 2303/0821 . . . the element placed in a compartment which can be opened without the need of opening the container itself
- F25D 2303/0822 . . . Details of the element
- F25D 2303/08221 Fasteners or fixing means for the element
- F25D 2303/08222 Shape of the element
- F25D 2303/08223 having the shape of an ice cube
- F25D 2303/083 . . using cold storage material disposed in closed wall forming part of a container for products to be cooled
- F25D 2303/0831 . . . the liquid is disposed in the space between the walls of the container
- F25D 2303/0832 . . . the liquid is disposed in an accumulator pack locked in a closable wall forming part of the container
- F25D 2303/084 . . Position of the cold storage material in relationship to a product to be cooled
- F25D 2303/0841 . . . external to the container for a beverage, e.g. a bottle, can, drinking glass or pitcher
- F25D 2303/0842 . . . inside the beverage contained in a bottle, can, drinking glass, pitcher or dispenser
- F25D 2303/0843 . . . on the side of the product
- F25D 2303/0844 . . . above the product
- F25D 2303/0845 . . . below the product
- F25D 2303/0846 . . . around the neck of a bottle
- F25D 2303/085 . . Compositions of cold storage materials

F25D 2317/00

- F25D 2317/04 . Treating air flowing to refrigeration compartments
- F25D 2317/041 . . by purification
- F25D 2317/0411 . . . by dehumidification
- F25D 2317/04111 Control means therefor
- F25D 2317/0413 . . . by humidification
- F25D 2317/04131 Control means therefor
- F25D 2317/0415 . . . by deodorizing
- F25D 2317/0416 . . . using an ozone generator
- F25D 2317/0417 . . . using an UV-lamp

F25D 2317/043 .. by creating a vacuum in a storage compartment

F25D 2317/06 . with forced air circulation

F25D 2317/061 .. through special compartments

F25D 2317/062 .. along the inside of doors

F25D 2317/063 .. with air guides

F25D 2317/065 .. characterised by the air return

F25D 2317/0651 ... through the bottom

F25D 2317/0652 ... through the corner

F25D 2317/0653 ... through the mullion

F25D 2317/0654 ... through the side

F25D 2317/0655 ... through the top

F25D 2317/066 .. characterised by the air supply

F25D 2317/0661 ... from the bottom

F25D 2317/0662 ... from the corner

F25D 2317/0663 ... from the mullion

F25D 2317/0664 ... from the side

F25D 2317/0665 ... from the top

F25D 2317/0666 ... from the freezer

F25D 2317/0667 ... from the refrigerator

F25D 2317/067 .. characterised by air ducts

F25D 2317/0671 ... Inlet ducts

F25D 2317/0672 ... Outlet ducts

F25D 2317/068 .. characterised by the fans

F25D 2317/0681 ... Details thereof

F25D 2317/0682 ... Two or more fans

F25D 2317/0683 ... the fans not of the axial type

F25D 2317/0684 ... the fans allowing rotation in reverse direction

F25D 2321/00

F25D 2321/14 . Collecting condense or defrost water
 Removing condense or defrost water

F25D 2321/141 .. Removal by evaporation

F25D 2321/1411 ... using compressor heat

F25D 2321/1412 ... using condenser heat or heat of desuperheaters

F25D 2321/1413 ... using heat from electric elements or using an electric field for enhancing removal

F25D 2321/142 .. characterised by droplet guides

F25D 2321/143 .. characterised by means to fix, clamp, or connect water pipes or evaporation trays

F25D 2321/144 .. characterised by the construction of drip water collection pans

F25D 2321/1441 ... inside a refrigerator

F25D 2321/1442 ... outside a refrigerator

- F25D 2321/145 . . characterised by multiple collecting pans
- F25D 2321/146 . . characterised by the pipes or pipe connections
- F25D 2321/147 . . characterised by capillary, wick, adsorbent, or evaporation elements

F25D 2323/00

- F25D 2323/0011 . Means for leveling refrigerators
- F25D 2323/002 . Details for cooling refrigerating machinery
- F25D 2323/0021 . . using air guides
- F25D 2323/0022 . . using multiple air flows
- F25D 2323/0023 . . Control of the air flow cooling refrigerating machinery
- F25D 2323/0024 . . Filters in the air flow cooling refrigerating machinery
- F25D 2323/0026 . . characterised by the incoming air flow
 - F25D 2323/00261 . . . through the back bottom side
 - F25D 2323/00262 . . . through the back top side
 - F25D 2323/00263 . . . through the back corner side
 - F25D 2323/00264 . . . through the front bottom part
 - F25D 2323/00265 . . . through the front top part
 - F25D 2323/00266 . . . through the bottom
 - F25D 2323/00267 . . . through the side
 - F25D 2323/00268 . . . through the top
- F25D 2323/0027 . . characterised by the out-flowing air
 - F25D 2323/00271 . . . from the back bottom
 - F25D 2323/00272 . . . from the back top
 - F25D 2323/00273 . . . from the back corner
 - F25D 2323/00274 . . . from the front bottom
 - F25D 2323/00275 . . . from the front top
 - F25D 2323/00276 . . . from the bottom
 - F25D 2323/00277 . . . from the side
 - F25D 2323/00278 . . . from the top
- F25D 2323/0028 . . characterised by the fans
 - F25D 2323/00281 . . . Two or more fans
 - F25D 2323/00282 . . . the fans not of the axial type
 - F25D 2323/00283 . . . the fans allowing rotation in reverse direction
 - F25D 2323/00284 . . . Details thereof
- F25D 2323/02 . Details of doors or covers not otherwise covered
- F25D 2323/021 . . French doors
- F25D 2323/022 . . Doors that can be pivoted either left-handed or right-handed
- F25D 2323/023 . . Door in door constructions
- F25D 2323/024 . . Door hinges

- F25D 2323/06 . Details of walls not otherwise covered
- F25D 2323/061 .. Collapsible walls
- F25D 2323/062 .. Inflatable walls
- F25D 2323/121 . the refrigerator is characterised by a water filter for the water/ice dispenser
- F25D 2323/122 . the refrigerator is characterised by a water tank for the water/ice dispenser

F25D 2325/00

- F25D 2325/021 . Shelves with several possible configurations
- F25D 2325/022 . Shelves made of glass or ceramic
- F25D 2325/023 . Shelves made of wires

F25D 2327/00

- F25D 2327/001 . Lighting arrangements on the external side of the refrigerator, freezer or cooling box

F25D 2331/00

- F25D 2331/80 . Type of cooled receptacles
- F25D 2331/801 .. Bags
- F25D 2331/8011 ... to be carried on the back of a person
- F25D 2331/8012 ... for cosmetics
- F25D 2331/8013 ... for playing golf
- F25D 2331/8014 ... for medical use
- F25D 2331/8015 ... Pouches
- F25D 2331/802 .. Barrels
- F25D 2331/803 .. Bottles
- F25D 2331/804 .. Boxes
- F25D 2331/8041 ... for drinking
- F25D 2331/805 .. Cans
- F25D 2331/8051 ... for holding milk
- F25D 2331/806 .. Dispensers
- F25D 2331/807 .. Eggs
- F25D 2331/808 .. Glasses
- F25D 2331/809 .. Holders
- F25D 2331/81 .. Pitchers
- F25D 2331/811 .. Pour-throughs
- F25D 2331/812 .. Trays

F25D 2400/00 **General features of, or devices for refrigerators, cold rooms, ice-boxes, or for cooling or freezing apparatus not covered by any other subclass**

- F25D 2400/02 . Refrigerators including a heater
- F25D 2400/04 . Refrigerators with a horizontal mullion
- F25D 2400/06 . Refrigerators with a vertical mullion
- F25D 2400/08 . Refrigerator tables
- F25D 2400/10 . Refrigerator top-coolers
- F25D 2400/12 . Portable refrigerators
- F25D 2400/14 . Refrigerator multi units
- F25D 2400/16 . Convertible refrigerators
- F25D 2400/18 . Aesthetic features
- F25D 2400/20 . Carts specially adapted for transporting objects to be cooled
- F25D 2400/22 . Cleaning means for refrigerating devices
- F25D 2400/24 . Protection against refrigerant explosions
- F25D 2400/26 . Refrigerating devices for cooling wearing apparel, e.g. garments, hats, shoes or gloves.
- F25D 2400/28 . Quick cooling
- F25D 2400/30 . Quick freezing
- F25D 2400/32 . Removal, transportation or shipping of refrigerating devices from one location to another
- F25D 2400/34 . Temperature balancing devices
- F25D 2400/36 . Visual displays
- F25D 2400/361 . . Interactive visual displays
- F25D 2400/38 . Refrigerating devices characterised by wheels
- F25D 2400/40 . Refrigerating devices characterised by electrical wiring

- F25D 2500/00** **Problems to be solved**
- F25D 2500/02 . Geometry problems

F25D 2500/04 . Calculation of parameters

F25D 2500/06 . Stock management

F25D 2600/00 Control issues

F25D 2600/02 . Timing

F25D 2600/04 . Controlling heat transfer

F25D 2600/06 . Controlling according to a predetermined profile

**F25D 2700/00 Means for sensing or measuring
Sensors therefor**

F25D 2700/02 . Sensors detecting door opening

F25D 2700/04 . Sensors detecting the presence of a person

F25D 2700/06 . Sensors detecting the presence of a product

F25D 2700/08 . Sensors using Radio Frequency Identification (RFID)

F25D 2700/10 . Sensors measuring the temperature of the evaporator

F25D 2700/12 . Sensors measuring the inside temperature

F25D 2700/121 . . of particular compartments

F25D 2700/122 . . of freezer compartments

F25D 2700/123 . . more than one sensor measuring the inside air temperature in a compartment

F25D 2700/14 . Sensors measuring the temperature outside the refrigerator or freezer

F25D 2700/16 . Sensors measuring the temperature of products